

Appl. No.: 10/709,872
Amdt. Dated: 6/30/2008
Reply to Office action of: 12/31/2007

REMARKS/ARGUMENTS

Claims 1 – 7 remain in this application. No amendments are presented herewith.

Applicants thank the Examiner for the removal of the previous rejections based on 35 U.S.C. 112, second paragraph as well as the under the judicially created doctrine of obviousness double patenting.

Applicants confirm that the discussions of amending claim 1 and of non-existent claims 9 – 12 and 14 – 22 were indeed inadvertently added. Applicants thank the Examiner for her attention to detail and understanding.

Claims 1 and 3 – 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson ('723). Specifically, the Examiner states:

Nelson ('723) discloses a motor fuel additive composition comprising a mixture of (a) from about 5 to about 50 percent of a detergent component, wherein the detergent component is the same as that of the instant claim 1, and a fuel conditioner component, comprising (i) from about 2 to about 50 percent of a polar oxygenated hydrocarbon, having an average molecular weight, acid number, and saponification number the same as that of instant claim 1, and (ii) from about 2 about 50 percent of an oxygenated compatibilizing agent, wherein the solubility parameter and hydrogen-bonding capacity is the same as that of instant claim 1 (col. 3, line 13 – col. 4, line 15; claim 1). Further, preferred embodiments of the amino compound reactant of formula (II) are given in Table 2, such that $Y=NR_5$. The additive composition is added to a base fuel in amounts between 50 ppm and 2000 ppm (col. 10, lines 44 – 50; col. 11, lines 14 – 20).

Nelson ('723) does not disclose: (i) addition of the additive composition to a base fuel simultaneously, before, or after other additives, and (ii) specifically a diesel fuel additive composition.

With respect to (i) above, regarding claims 3 – 5, although Nelson ('723) does not disclose the addition of the additive composition to a base fuel simultaneously, before or after other additives, it is noted that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the

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product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed addition of the additive composition to a base fuel simultaneously, before or after other additives and given that Nelson ('723) meets the requirements of the claimed composition, Nelson ('723) clearly meets the requirements of present claims 3 – 5.

With respect to (ii) above, it is the examiner's position that although the additive composition is not directed specifically towards a diesel fuel, the disclosure of motor fuel encompasses diesel fuel, since diesel is a type of motor fuel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention by applicant to utilize the composition of Nelson ('723) as a diesel fuel additive composition because of the generic usage of the term motor fuel in Nelson ('723).

Applicant respectfully traverses these rejections. The key to Applicant's invention is the discovery of the claimed diesel fuel additive that accelerates the combustion phenomenon and reduces ignition delay in diesel engines thereby reducing or eliminating a major problem of diesel fuel impurities commonly found in such diesel fuel as well as the claimed fuel additive synergistically interacting to reduce particulate emissions and increase Cetane number. Furthermore, in light of the fact that diesel fuel tends to have impurities form during storage through oxidation as well as being formed by insoluble materials resulting from diesel fuel production, the fact that a class of additive compound will provide benefit to a gasoline composition does not suggest that it will also provide the unexpected synergistic benefits in diesel fuel. Additionally, the time of adding a highly oxygenated polar compound to a material that is detrimentally affected by oxidation is also not obvious or suggested by the art.

Appl. No.: 10/709,872
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A fair reading of the Nelson ('723) reference discloses an additive package for motor fuel having any anti-knock materials previously blended into the base motor fuel before the addition of the additive package of Nelson ('723). Because of the unpredictable nature of organic compositions that are easily oxidized or otherwise prone to producing unwanted impurities through reaction with additives, a situation well known in the diesel fuel art, it is not obvious to be able to utilize a compound similar to one suitable for gasoline in a diesel fuel. Furthermore, the Nelson ('723) provides no teaching of a reduction of particulate emissions, which is not a major consideration in gasoline fuels. In contrast Applicant's claimed invention does provide such teaching in, for example, in Examples 1 – 3 (paragraphs [0059] – [0086]).

Clearly, when viewed in this light the Nelson ('723) reference does not disclose, teach, or suggest the use of a diesel fuel additive that accelerates the combustion phenomenon and reduces ignition delay in diesel engines thereby reducing or eliminating a major problem of diesel fuel impurities commonly found in such diesel fuel as well as the claimed fuel additive synergistically interacting to reduce particulate emissions and increase Cetane number.

Claim 1 was rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6488723. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the reasons set forth below. Specifically, the Examiner states:

US 6488723 discloses a motor fuel additive composition comprising a mixture of (a) from about 5 to about 50 percent of a detergent component, wherein the detergent component is the same as that of instant claim 1, and (b) a fuel conditioner component comprising (i) from about 2 to about 50 percent of a polar oxygenated hydrocarbon having an average molecular weight, acid number, and saponification number the same as that of instant claim 1, and (ii) from about 2 to about 50 percent of an oxygenated compatibilizing agent, wherein the solubility parameter and hydrogen-bonding capacity is the same as that of the instant claim 1.

US 5488723 does not disclose specifically a diesel fuel additive composition.

It is the examiner's position that although the additive composition is not directed specifically towards a

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diesel fuel, the disclosure of motor fuel encompasses diesel fuel, since diesel is a type of motor fuel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to utilize the composition of Nelson ('723) as a diesel fuel additive composition.

Claim 1 is directed to an invention not patentably distinct from claim 1 of commonly assigned US 6488723. Specifically, although the conflicting claims are not identical, they are patentably distinct for the reasons set forth in paragraph ** above.

Applicant respectfully traverses these rejections. The key to Applicant's invention, as mentioned above, is the discovery of the claimed diesel fuel additive that accelerates the combustion phenomenon and reduces ignition delay in diesel engines thereby reducing or eliminating a major problem of diesel fuel impurities commonly found in such diesel fuel as well as the claimed fuel additive synergistically interacting to reduce particulate emissions and increase Cetane number. Furthermore, in light of the fact that diesel fuel tends to have impurities form during storage through oxidation as well as being formed by insoluble materials resulting from diesel fuel production causing diesel engine combustion phenomenon and higher particulate emissions, the fact that a class of oxygenated additive compound will provide benefit to a gasoline composition does not suggest that it will also provide the unexpected synergistic benefits in diesel fuel. Additionally, the time of adding a highly oxygenated polar compound to a material that is detrimentally affected by oxidation is also not obvious or suggested by the art.

In response to the Applicants' previous arguments the Examiner states:

Applicant argues that the fact that a class of additive compounds will provide benefit to gasoline composition does not suggest that it will also provide the unexpected synergistic benefits in diesel fuel, or the timing of adding such a compound to the diesel fuel.

Nelson teaches that the fuel additive composition of his invention may be employed in a wide variety of hydrocarbon or modified hydrocarbon fuels. This teaching alone suggests what Applicant has done. There is nothing in Nelson to suggest that this teaching of a wide variety of hydrocarbon fuels does not include diesel fuel. Furthermore, Applicant's data have been reviewed and there is no unexpected results presented. Nelson teaches

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adding the fuel additives to fuels that may include diesel fuel. This is what Applicant has done.

With respect to Nelson not teaching reduction of particulate emissions, accelerated combustion, reduced ignition delay and increased Cetane number, Nelson teaches a similar fuel composition and one skilled in the art would have a reasonable expectation that by practicing Nelson the above properties would be obtained.

Applicants respectfully traverse these rejections. The Examiner seemingly has taken a phrase out of context to support the Examiner's basis of rejection under 35 U.S.C. 103 quoted hereinabove. The phrase depended on by the Examiner appears only once in the Nelson reference in Col. 9, lines 34 – 36, however this is only a part of the complete sentence and only the introductory sentence to the paragraph defining what fuels the Nelson invention is disclosed as working with. The full sentence and the rest of the paragraph it introduces clearly define the fuels the Nelson reference compounds are suitable for use with at gasoline and modified gasoline stocks.

The additive composition of this invention may be employed in a wide variety of hydrocarbon or modified hydrocarbon (e.g. alcohol-containing) fuels for a variety of engines. Preferred motor fuel compositions for use with the additive composition of this invention are those intended for use in spark ignition internal combustion engines. Such motor fuel compositions, generally referred to as gasoline base stocks, preferably comprise a mixture of hydrocarbons boiling in the gasoline boiling range, preferably from about 90 – 450° F. This base fuel may consist of straight chains, branch chains, paraffins, cycloparaffins, olefins, aromatic hydrocarbons, and mixtures thereof. The base fuel may be derived from, among others, straight run naphtha, polymer gasoline, natural gasoline, or from catalytically cracked or thermally cracked hydrocarbons and catalytically reformed stock. The fuel may also contain synthetic hydrocarbons, ethers, such as methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE) and the like, alcohols, such as methanol, ethanol, TBA and the like, and other functional organic compounds such as ketones, esters, and the like. The composition and octane level of the base fuel are not critical and any conventional motor base fuel may be employed in the practice of this invention. In addition, the motor fuel composition may additionally comprise other

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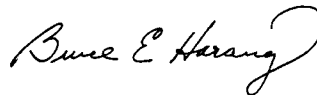
additives typically employed in motor fuels, such as anti-knock compounds (e.g. tetraethyl lead), anti-icing additives, upper cylinder lubricating oils, carburetor detergents, anti-corrosion additives, de-emulsifying agents, odor suppressors, and the like (Col. 9, lines 34 – 44).

Thus, the introductory sentence when taken as a whole and the rest of the paragraph it introduces are clearly solely directed to gasoline base stock fuels. To spark ignition internal combustion engines, i.e., gasoline engines and not diesel engines and therefore diesel fuels. Furthermore, all of the examples 1 through 9 (col. 10, line 1 – col. 15, line 23) are directed solely to gasoline fuels used in spark ignition internal combustion engines. Clearly, nothing in the Nelson reference discloses, teaches, or fairly suggests the use of the claimed invention of the Nelson reference for use with diesel fuels or the synergistic effects of Applicants' claimed invention.

The suggestion that additives that work with gasoline base stocks suggests to one skilled in the art that such additives would be suitable for diesel base stocks lacks foundation in the art and in fact. The combustion of diesel fuels is by a totally different type of engine, creates a very different type of combustion within the cylinders, and provides a completely different set of emissions and emission control criteria. The conditions and delivery of fuel and the combustion conditions thereof by a diesel engine are completely different than those of a gasoline engine. Clearly, this suggested commonality of gasoline and diesel fuels is not found in the Nelson reference and therefore this reference does not disclose, teach, or fairly suggest Applicants' claimed invention.

In view of the remarks herein, and the amendments hereto, it is submitted that this application is in condition for allowance, and such action and issuance of a timely Notice of Allowance is respectfully solicited.

Respectfully submitted,



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